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NEW PLANTS FROM NORTH DAKOTA.—VII.

By J. LUNELL.

Rosa subnuda sp. nov.

Caudices 3–8 dm. alti, circiter 1 cm. diametro, lucide et surde cinerei, inermes vel spinis numerosis, inequalibus, prorsus tenuibus, ferme rectis partim vestiti; rami splendide obscure fusci, inermes vel spinis tenuibus forsan armati, valde foliosi. Stipulae integrae, conspicue non dilatatae neque spinulosae, nonnumquam glanduloso-marginatae, subtus molliter pubescentes, superne glabratae. Rachis folii minute villosa vel tomentulosa, neque glanduloso-pilosa, saepe spinulosa. Foliola 5–9, ovalia vel obovata, obtusa, basi cuneata, modice serrata, 1.5–3 cm. longa, petiolulata, subtus molliter pubescentia, superne glabrata. Flores pallide rubicundi, 3–5 cm. lati, corymbosi. Receptaculum glabrum. Sepala interiora integra, exteriora lobata, lanceolata, singulis vel binis apicibus longis, linearibus, glabratis ornata, interne eoque magis marginaliter albido-lanata, tergo partis inferioris glanduloso-hispido. Fructus globularis, 1–1.5 cm. diametro. Partes plantae variae omnes valde confertae.

Stems 3–8 dm. high, about 1 cm. in diameter, light and dull ashy gray, unarmed or partly covered with numerous, unequal, rather weak, nearly straight prickles; the branches brightly dark mahogany colored, unarmed or with occasional weak prickles, very leafy. Stipules entire, not comspicuously dilated, not prickly, occasionally glandular-margined, soft-pubescent beneath, glabrate above. Leaf-rachis finely villous or tomentulose, without glandular hairs, often prickly. Leaflets 5–9, oval or obovate, obtuse, with cuneate base, not deeply serrate, 1.5–3 cm. long, petiolulate,

* January 15, 1912.—Pages 153 to 168.

softly pubescent beneath, glabrate above. Flowers pale pink, 3–5 cm. wide, corymbose. Receptacle smooth. Sepals lanceolate with 1 or 2 long, linear, glabrate tips, the inner ones entire, the outer lobed, white-woolly within and still more on the margins, the back of the lower part glandular-hispid. Fruit globular, 1–1.5 cm. in diameter. All the different parts of the plant very crowded.

This species avoids the open prairie where *R. heliophila* reigns, selecting more protected quarters, as thickets, ravines, etc. The type was collected in a deep ravine at Butte, Benson County, in flower June 25, 1911, and in fruit August 28, 1911. The flowering season is confined to the latter three weeks of June for this and the other species here described, while it lasts for *R. heliophila* from May to September.

Rosa gratiosa sp. nov.

Caudices et rami paene inermes vel spinis tenuibus rectis longitudinis inaequalis vestiti, obscure fusci. Stipulae amplae, marginibus undulatis, apicibus glanduloso-serrulatis, superne glabratae, subtus pubescentes vel glabratae. Rachis folii tomentulosa, setis et spinulis fortuito praedita. Foliola 5–9, ovalia vel obovata vel nonnulla fere orbicularia, plerumque basi cuneata, apicibus obtusis vel retusis, ampla, saepe 5 cm. longa et 3.5 cm. lata, petiolulata, serrata, ambobus lateribus glabrata, pubescentia nervorum et marginum minuta subtus vestita. Flores splendide et saturate rubicundi, 2.5–4 cm. lati, corymbosi vel solitarii. Receptaculum glabrum. Sepala apicibus longis glabratis integra, lanceolata, interne et marginaliter albido-lanata, tergo partis inferioris setis longis tenuiter sparsis magnopere glandulosohispido. Fructus globularis vel pyriformis, glaber, 1–1.5 cm. diametro.

Stems and branches nearly unarmed or covered with weak, straight prickles of unequal length, dark brown. Stipules ample, wavy-margined, glandular-serrulate at the apices, glabrate above, pubescent or glabrate beneath. Leaf-rachis tomentulose, with occasional setae and prickles. Leaflets 5–9, oval or obovate or some nearly circular, usually cuneate at base, with obtuse or notched apices, large, often 5 cm. long and 3.5 cm. wide, petiolulate, serrate, glabrate on both sides, with a minute pubescence on the nerves and margins beneath. Flowers of a brilliant deep pink, 2.5–4 cm. wide, corymbose or solitary. Receptacle smooth.

Sepals entire, with long, glabrate tips, lanceolate, white-woolly within and on the margins, the back of the lower part strongly glandular-hispid with long, scantily scattered setae. Fruit globular or pear-shaped, glabrous, 1–1.5 cm. in diameter.

This species inhabits the woodland of the Turtle Mountains and the thickly timbered banks of Souris River. The specimens selected as type were collected by the writer near St. John, Rolette County, on July 7, 1910, in flower, and on July 29, 1910, in fruit, both specimens from the same individual plant.

Both of the species just described belong to the *R. blanda* group, but their highest developed leaves have 9 leaflets, while *R. blanda* has never more than 7, and the latter has naked and entire stipules and larger flowers (sometimes 7 cm. broad). *R. subnuda* is a smaller plant with shorter woody and herbaceous branches, with stipules entire and soft-pubescent beneath, with the leaves and leaflets smaller and much more crowded and the latter softly pubescent beneath, the flowers of a lighter pink, all corymbose, and the outer sepals lobed, while *R. gratiosa* is taller, with larger branches, the stipules serrulate at the apex, leaflets larger, glabrate beneath, flowers a deep pink, corymbose or solitary, and the outer sepals entire. In general appearance this species comes nearer to *R. blanda* than *R. subnuda*.

Rosa terrens sp. nov.

Usque altitudinem 15 dm. crescens, caudicibus et ramis splendide obscuro-fuscis, spinas plerumque rectas longitudinis inaequalis uberrime gerens, quae praecipue in ramis sterilibus amplissimae et aspectu formidolosae fiunt. Stipulae late et glanduloso-serrulate alatae, glabrae vel glabratae. Rachis folii tomentulosa, spinis forsam armata. Foliola saturate viridia, obovata vel ovalia, obtusa, basi cuneata, usque paulum infra medium serrata, 2–3 cm. longa, petiolulata, subtus molliter pubescentia, superne glabrata, 7–11 (gemina infima minora, ubi margines superiores alarum stipulae rachi adiunguntur affixa, petiolulis eorum rachi parallele interdum currentibus; quorum foliolorum alterum saepe deest). Flores mihi ignoti, corymbosi. Sepala lanceolata, integra vel lobata, interne et marginaliter albido-lanata, tergo glanduloso-hispido. Fructus globularis, 1 cm. diametro.

Growing to a height of 15 dm., with stems and branches of a brilliant dark mahogany color, copiously armed with mostly straight

prickles of different size which especially on the sterile branches become very large and of a formidable appearance. Stipules with broad, glandular-serrulate wings, glabrous or glabrate. Leaf-rachis tomentulose with occasional prickles. Leaflets dark green, obovate or oval, obtuse, with a cuneate base, serrate to somewhat below the middle, 2–3 cm. long, petiolulate, softly pubescent beneath, glabrate above, 7–11 (the last pair smaller, attached where the upper margins of the wings of the stipule join the rachis, their petiolules sometimes running parallel to the rachis, one of these leaflets often wanting). Flowers not seen, corymbose. Sepals lanceolate, entire or lobed, white-woolly within and on the margins, glandular-hispid on the back. Fruit globular, 1 cm. in diameter.

Collected by the writer on a bare gravelly desert-like plain at Pleasant Lake, Benson County, on August 14, 1911.

Rosa deserta sp. nov.

Circiter 5 dm. alta, spinis mediocriter fortibus, sparsis, ferme rectis neque longitudine admodum variabilibus armata, caudices obscure cani, rami obscure fusci. Stipulae comparate amplissimae, integrae vel glanduloso-serrulatae, glabrae. Rachis folii glabra, spinulis forsan armata, propemodum capillaris. Foliola 7 (foliolis 1 vel 2 minoribus saepe additis et inter alas stipulae affixis), conspicue petiolulata, late vel anguste obovata, basi cuneata vel rotundata et apice obtusa, basi excepta serrata, 5–12 mm. longa, ambobus lateribus glabra. Pedunculi 0.5–1 cm. longi. Flores mihi ignoti, perparvi autem, ut conjici potest, corymbosi vel solitarii. Receptaculum glabrum. Sepala lanceolata, integra vel lobata, interne et marginaliter albido-lanata, tergo glanduloso-hispido et parallelo-venoso. Fructus ruber, globularis vel pyriformis, 6–10 mm. diametro.

About 5 dm. high, armed with moderately strong, scattered, nearly straight prickles, not very variable in size, the main stems a dull gray, the branches a dull brown. Stipules proportionately very ample, entire or glandular-serrulate, glabrous. Leaf-rachis glabrous with occasional prickles, almost capillary. Leaflets 7 (often with a single or a pair of smaller additional leaflets attached between the wings of the stipules), markedly petiolulate, broadly to narrowly obovate, with cuneate or rounded base and obtuse apex, serrate except at the base, 5–12 mm. long, glabrous on both

sides. Peduncles 0.5–1 cm. long. Flowers not seen, but presumably very small, corymbose or solitary. Receptacle smooth. Sepals lanceolate, entire or lobed, white-woolly within and on the margins, glandular-pubescent and parallel-veined on the back. Fruit red, globular or pyriform, 6–10 mm. in diameter.

Collected by the writer on a bare gravelly desert-like plain at Pleasant Lake, Benson County, on July 2 and August 14, 1911.

Rosa heliophila **foliosissima** var. nov.

Foliola minuta, sessilia, subsessilia vel petiolulata, 1–8. singula vel gemina, in rachi inter foliola solita dispersa.

Scattered on the rachis between the usual pairs of leaflets are 1–8 small leaflets, single or in pairs, sessile, subsessile or petiolulate.

Found by the writer in wet soil at Butte, Benson County, on August 28, 1911.

Steironema pumilum **longipedicellatum** var. nov.

Pedicelli 3–5 cm. longi, gracillimi, varie curvati (typici tantum 2–3 cm. longi).

While the pedicels of the type are 2–3 cm. long only, they are 3–5 cm. long in this variety, very slender, and curved variously.

Collected by the writer in high grass on low land along a couleé at Leeds, Benson County, on August 5, 1909.

Rudbeckia flava **perbracteata** var. nov.

Bracteae involucri amplae, 2.5–3 cm. longae (speciei 1.5–2 cm. longae), flores radiatos late transcendentes. Caulis ramosus, usque apicem foliosus, foliis amplitudine aequalibus.

Involucral bracts large, 2.5–3 cm. long (in the species 1.5–2 cm. long), far surpassing the rays. Stem branched, leafy to the top, with leaves of equal size.

Collected by the writer in rich soil at Butte, Benson County, on August 28, 1911.

Thalictrum thyrsoideum **silvanum** var. nov.

Caules de singulis vel binis fascibus radicum numerosarum, fibrosarum, carnosarum aeque vel perpendiculariter currentes saepe 1–3 dm. priusquam e solo emergunt, solitarii vel nonnulli, in plantis robustis de axillis ramosi, secus simplices. Folia am-

plissima, 2–4 (plerumque 3), inferiora petiolis 4–10 cm. longis, summum petiolo brevi, saepe 0.5 cm. solum longo ornatum vel etiam sessile. Foliola luxuriosa tertianos quoque lobos gerentes, specie minus glauca vel superne omnino viridia, in plantis juvenibus non florescentibus saepe amplissima. Achenia oblique oblongo-elliptica, matura 6–7 mm. longa. Mares floribus copiosioribus et inflorescentia quam feminarum ampliore abundant.

Stems from one to two tufts of numerous fibrous, fleshy roots running horizontally or vertically often 1–3 dm. before emerging from the ground, as in the species, solitary or several, branching from the axils in robust plants, else simple. Leaves very ample, 2–4 (mostly 3), the lower with petioles 4–10 cm. long, the uppermost leaf with very short, often only 0.5 cm. long petiole, or even sessile. Leaflets, when well developed, bearing even tertiary lobes, less glaucous than the species or the upper surface perfectly green, often of a remarkable size in young, non-flowering plants. Achenes obliquely oblong-elliptic, when well developed 6–7 mm. long, and if extremely well matured becoming quite plump and approximating the ovoid outline. The staminate plants with considerably more flowers and ampler inflorescence than the pistillate.

This magnificent variety is an inhabitant of the woodland, growing both in deep shade and in open woods, always exclusively in rich humus. It seldom fails to appear where these conditions prevail. It has been collected by the writer on the peninsula of Lake Ibsen and at Pleasant Lake, around Devil's Lake and in the Turtle Mountains, and I have exchange material in my herbarium proving that it has been found also in the southern parts of the state.

Lacinaria scariosa **subcorymbosa** var. nov.

Planta amplitudine media, circa 2.5 dm. alta; inflorescentia brevis, circiter 6 cm. longa, paucicapitata (typicarum capitulis 6), subcorymbosa.

This is a middle-sized plant, about 2.5 dm. high, with a short inflorescence, about 6 cm. long, and few heads (in the type plants 6), subcorymbosely arranged.

This variety, belonging to group I, is easily distinguished from var. *corymbulosa* Sheldon, which has a many-headed, protracted inflorescence on a tall stem, and from my var. *subcymosa*, which has petioled leaves of the upper series.

Collected by the writer in dry soil at Leeds, Benson County, on August 25, 1907. An "artificial" form of this variety is produced whenever the growth is arrested at the top of the plant.

Leeds, North Dakota.

NEW PLANTS FROM MINNESOTA—II.

By J. LUNELL.

Tradescantia ramifera Chandonnetii var. nov.

Caules solitarii vel duo, gracillimi, internodis valde remotis (saepe 1.5 dm.). Bracteae plerumque 3. Semina formam mitrae habent, 2.5–3 mm. longa, 1.5–2 mm. lata, formae typicae haud dissimilia.

Stems solitary or two, very slender, distance between the internodes very long (often 1.5 dm.). Bracts mostly 3. The seeds have the outline of a mitre, are 2.5–3 mm. long, and 1.5–2 mm. broad, and do not differ from those of the type.

This variety, also resembling the type in the tendency towards repeated branching, was collected by Rev. Father Z. L. Chandonnet on the prairie of Perham, Ottertail County, Minn., on the 26th of June 1911.

Laciniaria scariosa var.

Since the publication in this journal of my paper on varieties of *Laciniaria scariosa* in North Dakota I received from Rev. Father Z. L. Chandonnet of Perham, Minn., a fascinating set of Minnesota varieties belonging to this species, all the specimens having been collected by himself. The study of them caused me to recognize that they belong to a group essentially different from the group comprehending all the North Dakota varieties (except v. *opima*, which differs from its Minnesota kin only by its short and broad leaves). The new group has the following characters, and will be classified as

Group III Stems 6–11 dm. high. Lower series of leaves long-petioled, mostly narrowly lanceolate, upper series linear or nearly so. Heads numerous, 20–90 or more, in a simple or branched raceme, occupying 1–3 to 1–2 or sometimes even 4–5 of the whole stem.

Clavis analytica varietatum.

A. Folia series inferioris folia quaedam in caule altiora superscandentia ..... 1. var. *superscandens*

A. Nullum folium inferius quidquam in caule altius folium superscandens.

a. Folia series inferioris ampla, longi-petiolata, valde remota

b. Caulis simplex.

c. Flores subsessiles vel pedicellis brevibus longioribusve, adscendentibus ..... 2. var. *praecellens*

c. Flores pedicellis reclinatis... 3. var. *nictitans*

b. Caulis ramosus, floribus ramorum sessilibus vel brevi-pedicellatis..... 4. var. *ramea*

a. Folia series inferioris amplitudinem modicam neque petiolos tam longos praebentia, magis minusve remota..... 5. var. *porrecta*

a. Folia series inferioris linearia vel linearilanceolata, amplitudinem modicam, petiolos angustos, nonnihil breves praebentia, nec non appropinquata.

b. Caulis simplex..... 6. var. *propinqua*

b. Caulis partibus usque 4 superioribus e 5 ramosus..... 7. var. *brachiata*

a. Folia linearia, brevia caule toto usque inflorescentiam conferta, infima petiolis brevibus, cetera omnia sessilia.

b. Flores brevi-pedicellati vel subsessiles..... 8. var. *Chandonnetii*

b. Flores in pedicellis mediocribus positi.. 9. var. *obesa*

Key of varieties.

A. Leaves of the lower series overtopping some leaves borne higher up on the stem..... 1. var. *superscandens*

A. No lower leaf overtopping any borne higher on the stem.

a. The leaves of the lower series large, long-petioled and very distant.

b. Stem simple.

c. Flowers subsessile, or on short or rather long, ascending pedicels. 2. var. *praecellens*

c. Flowers nodding, on recurved pedicels.....3. var. *nictitans*

b. Stem branched, with sessile or short-pedicelled flowers on the branches....4. var. *ramea*

a. The leaves of the lower series middle-sized, with shorter petioles, more or less distant..5. var. *porrecta*

a. The leaves of the lower series linear or linear-lanceolate, of moderate length, with narrow petioles, quite short, rather approximate.

b. Stems simple.....6. var. *propinqua*

b. Stems branched even as low down as to the lowest 1-5 of the stem.....7. var. *brachiata*

a. The leaves linear, short and crowded along the whole stem up to the inflorescence, the lowest on short petioles, all others sessile.

b. Flowers short-pedicelled or subsessile.....8. var. *Chandonnetii*

b. Flowers borne on pedicels of moderate length.....9. var. *obesa*

The var. *superscandens* is a very slender plant with very distant and long-petioled leaves of the lower series, which occupies ⅓ of the stem beneath the very narrow raceme. The corresponding North Dakota variety is var. *supereminens*. It was collected in dry sandy soil at Staples, Todd County, on August 29, 1911.

The var. *praecellens* is an unusually stout, luxuriant plant, with thick, strong stem, leaves of the lower series uncommonly large and leathery, and the involucral heads subsessile or short-peduncled and in well developed plants exuberant, often numbering 30 or more. The corresponding North Dakota variety is var. *praestans*. The type specimen was collected in dry, red sand at Perham, Ottertail County, on August 22, 1911.

The var. *nictitans* is an elegant form with its arcuate, reclinate pedicels, 1–2.5 cm. long. It was collected in dry, sandy soil at Staples, Todd County, on August 29, 1911.

The var. *ramea* has its lower branches 5 cm. long and few-flowered. One plant has a corymbose inflorescence, probably on account of defective growth of the top. The type's inflorescence

is a thyrsus, narrow at the top, widened at the base. It was collected in dry, sandy soil at Staples, Todd County, on August 9, 1911.

The var. *porrecta* is usually slender and middle-sized, and somewhat variable. The corresponding North Dakota variety is var. *multiplex*. The type was collected at Staples, Todd County, on August 9, 1911. Another form from Wanbun, Mahnomen County, collected July 28, 1911, has ampler foliage.

The var. *propinqua* has the var. *angustata* of North Dakota as its nearest corresponding form. The type was collected at Staples, Todd County, on August 9, 1911, and a form with ampler leaves from Wanbun, Mahnomen County, bears the date of July 28, 1911.

The var. *brachiata* has a multitude of flower-bearing branches, 1–1.5 dm. long. The type, being available only as a single plant, has a broad, thyrsoid or almost corymbose inflorescence, probably caused by arrested or deficient growth at the apex of the stem. This condition may be partly accountable for the extraordinary length of the branches. Collected in dry, sandy soil at Staples, Todd County, on August 29, 1911.

The var. *Chandonnetii* is a signally beautiful form with its profusion of narrow leaves, the radical 8 cm. and beneath the inflorescence 2.5 cm. long, and its narrow, compact inflorescence. It was collected in dry, sandy soil at Staples, Todd County, on August 29, 1911.

The var. *obesa* is a much stouter plant, with thicker stem, thicker, larger leaves, the radical 8 cm. long, the lower in the inflorescence 6 cm. long, the uppermost bract-like, 1 cm. long. Heads about 90. Inflorescence up to 6.5 dm. long, conspicuously pedicelled, the lowest ones often reaching a length of 5 cm. The corresponding North Dakota plant is var. *opima*. Collected in dry, sandy soil at Staples, Todd County, on August 29, 1911.

While in North Dakota differences in soil constituents, moisture and elevation are the essential factors in the creation of the different varieties, in Minnesota the all-important condition seems to be a dry,sandy soil, and Staples appears to be for this *scariosa*-group the ideal locality and the real paradise.

A NEW LACINIARIA FROM FLORIDA.

By J. LUNELL.

Laciniaria Deamiae sp. nov.

Caules 1–4, 3–7.5 dm. alti, foliosissimi. Folia radicalia anguste lanceolata, longipetiolata, saepe longitudinem 1.5 dm. obtinentia. Folia caulina series inferioris omnino basilaria, caulem infimum supra tuber quasi verticillatim cingentia, perpauca, linearilanceolata, infra medium angustata in petiolum alatum gracilem decurrentia, non ciliata, apice acuminato, 0.5–1 dm. longa, 2–6 mm. lata. Folia series superioris parva, anguste linearia, valde numerosa, infima 3 cm. longa, sursum sensim reducta, infra inflorescentiam 1.5 cm. longa, vel per totum caulem aequalia, vel caule medio longiora quam ambobus extremitatibus. Spica angusta, densissima, 1.5–3.5 dm. longa. Capitula 8–12 mm. longa, pauciflora, congesta. Bracteae involucri oblongo-lanceolatae, dorso viridi et marginibus purpureis vel viridibus, scariosis, non ciliatis, et apicibus rectis, acutis, mucronatis. Achenia 5 mm. longa, dense pubescentia. Setae pappi minutatim barbellulatae.

Stems 1–4, 3–7.5 dm. high, very leafy. Radical leaves narrowly lanceolate, on long petioles, often reaching 1.5 dm. in length. Stem leaves of the lower series strictly basal, forming a rosette at the end of the stem immediately above the tuber, comparatively few, linear-lanceolate, not ciliate, narrowed below the middle into a slender margined petiole, acuminate at the apex, 0.5–1 dm. long, 2–6 mm. wide. The upper series has small, narrowly linear, very numerous leaves, above the rosette 3 cm. long, very gradually becoming shorter upwards, 1.5 cm. long just below the inflorescence, or having the same length throughout, or longer at the middle of the stem than toward the inflorescence and the lower end. Spike narrow, very dense, 1.5—3.5 dm. long. Heads 8–12 mm. long, few-flowered, crowded. Involucral bracts oblong-lanceolate, with green back and purple or green, scarious margins, not ciliate, and with straight, acute, mucronate tips. Achenes 5 mm. long, densely pubescent. Pappus-bristles minutely barbellulate.

This beautiful new species growing on sandy wastes in the vicinity of St. Petersburg, Florida, where it was seen in abundance near the railroad track, was collected by Mrs. Chas. C. Deam of

Bluffton, Indiana, on September 23, 1907, and it bears her number 2804. Mrs. Deam has given a special interest to Florida plants, and her explorations have resulted in a fine and varied representation from that state in her herbarium. The species was named in her honor.

Leeds, North Dakota.

NOTES ON LOCAL PLANTS.

By J. A. Nieuwland.

In the July number of Rhodora* Dr. Fernald excludes both *Aster macrophyllus* Linn. and *Thuja occidentalis* from Indiana. Maps illustrating the distribution of both are given and show that these plants are not to be looked for even in Michigan within thirty miles or so north of the boundary of our state. As a matter of fact I have in the course of my botanizing trips, found *Aster macrophyllus* in several places in Indiana, notably at Chain Lakes a good ten miles south of the Michigan boundary.

There is a Thuja-Larix swamp directly north of Mineral Springs, Indiana, less than a mile from Lake Michigan at the edge of the dune region, and about half way between Dune Park, Indiana and Michigan City. The Tamarack-Arbor-vitae swamp is on the eastern boundary of a notable region in which are found not only the ordinary dune plants of our inland lakes, but some not to be found elsewhere in our region except in the stretch from there to the Indiana-Illinois boundary. Among these plants is *Opuntia humifusa* Raf. The plant is found nowhere in our region except in the locality mentioned and it is very abundant there. It is probably protected from our severe frosts by the fact that, securely hidden between the dunes, the cold north winds tempered by passing over Lake Michigan between the rifts of the hills partly cover up the plants with sand and snow, thus keeping out the severe cold that would otherwise and elsewhere in our locality destroy them.

Other plants peculiar to this region are *Schmaltzia arenaria* Greene, *Typha angustifolia* Linn., and *Hypericum kalmianum*

* Fernald, M. L. Expedition to Newfoundland and Labrador. Rhodora, vol 13, No. 151, p. 142, July, 1911.

Linn. Several species have not been reported from elsewhere among these *Persicaria lonchophylla* Greene, a very remarkable amphibious Smartweed, because there is such a notable difference between the short aquatic and the very long narrow terrestrial leaves.

The Arbor-vitae trees are not in the best of condition as it is evident that the tamaracks are getting the better of them, and, moreover, there is a drainage ditch a few hundred yards from the edge of the growth of trees.

The whole swamp mentioned above will of course soon succumb to the active attempts at rescuing land for farming purposes. Dozens of plants are now extinct in our region never to return, because their peculiar habitats are gradually disappearing. I have not found *Cypripedium candidum* since 1896, and there are now only two places where *Cypripedium acaule*, the stemless Lady's slipper is found within forty miles of South Bend north and south and some farther west. Both these localities are being drained also. I have not found *Oxycoccus*, the Cranberry in St. Joseph county. *Drosera rotundifolia*, the Sundew, too is extinct here and it is only a question of a few years until *Sarracenia purpurea*, the Pitcher Plant, will have disappeared entirely. It would seem that some effort ought to be made on the part of our local nature students to save such interesting and beautiful examples of plant life as those mentioned, and of *Cypridium Reginae* the Showy Lady's Slipper, and *Calopogon pulchellus*, the Grass Pink. I know only a few places where even these are found in Northwestern Indiana and Southern Michigan. The disappearance of the Passenger Pigeon once so plentiful, together with the futile attempts at finding it again ought to teach the lesson that it is too late to close the cage when the bird is gone.

OUR SONG BIRDS.—IV.

By Brother Alphonsus, C. S. C.

Killdeer.

Aegialitis vocifera.

One of the earliest notes in spring, the Killdeer's call is heard until late in autumn. There are few sounds in nature more pleasing

than the repeated *kill-dee* of this plover. The bird flies high, uttering its notes as it proceeds. The Killdeer is often heard after dark.

SCARLET TANAGER.

Piranga erythromelas.

The robin-like notes of this very beautiful bird are heard in the tall trees of secluded woods. The notes are less musical than those of the Robin. Its call-note is one of the most pleasing of any of our birds. The Tanager sings all summer.

CARDINAL.

Cardinalis virginianus.

This rare and beautiful bird's loud, whistling notes may be heard in trees that border rivers and lakes. It is an early arrival, when its song begins and is heard until the end of summer. By one who has never heard the Cardinal, its whistle will likely be taken for that of a human being.

MORNING DOVE.

Zenaidura macroura.

Perhaps the saddest note of all our song birds, the cooing of the Dove is a common summer sound in groves, especially those of evergreen trees. In the sombre gloom of spruce or pine, the note of this species seems in perfect harmony with the bird's surroundings.

HOUSE WREN.

Troglodytes aedon.

This little songster of the garden is a prime favorite of all bird-lovers. Late in April his song is first heard and—as there are several broods—the singing, like the Robin's, lasts till August. Sitting on some outhouse, the wren will sing as if its throat would burst.

BOBWHITE.

Colinus virginianus.

This well-known game bird has a loud, clear whistle. In spring, the two notes sound quite like the bird's name; at other seasons one long note is heard. Like the Cardinal, the whistle of Bobwhite will deceive a person little acquainted with the songs of birds.

(To be continued.)

MIGRATION OF OUR BIRDS IN THE SPRING OF 1911.

By Brother Alphonsus, C, S. C.

A number of species showed during three successive seasons great regularity in the dates of their arrival. The Bluebird's dates were: '09, Mar. 1; '10, Feb. 22; '11, Feb. 23. The Robin's were: '09, Mar. 2; '10, Mar. 4; '11, Feb. 25; The Killdeer's were: '09, Mar. 9; '10, Mar, 4; '11, Mar. 9. The Purple Grackle's were: '09, Mar. 7; '10, Mar. 6; '11, Mar. 9. The Meadowlark's were: '09, Mar. 5; '10, Mar. 6; '11, Mar. 9. The Song Sparrow's were: '09, Mar. 6; '10, Mar. 5; '11, Mar. 9. It will be noticed that the above species in the several seasons, from '09 to '11, arrived on dates relatively near each other. This fact would seem to indicate that those species were in their migrations governed by the same conditons in the weather. I think that the observations of all ornithologists have convinced them that the state of the weather is the determining cause of the movements of all migratory birds.

In the following list, several species showed during the same seasons considerable difference in the dates of their arrival. The Kingfisher's dates were: '09, Apr. 3; '10, Mar. 30; '11, Mar. 22, with 12 days between the earliest and latest dates. The Vesper Sparrow's were: '09, Apr. 5; '10, Mar. 26; '11, Apr. 9, with a difference of 14 days. The Flicker's were: '09, Apr. 5; '10, Mar. 24; '11, Apr, 5, difference of 12 days. The Red-headed Woodpecker's were: '09, Apr. 20; '10, Apr. 4; '11, Mar. 18, a difference of 33 days. When the time is longer then 14 days, I think the observer has failed to note the actual dates of arrival.

An interesting fact disclosed itself to the writer last winter in the absence of the Snowbird, from Jan. 29 to Mar. 18, 51 days. Did the bird migrate during this time from a large region or was it only locally absent? Of course, as my observations covered only a small extent of territory, I can not answer this question. Neither could I assign a reason for such a migration of this species.

The reader will wonder, probably, at the small number of warblers seen by the writer this spring. One of the reasons, doubtless, why he saw so few was the extremely warm weather of May, which, he thinks, caused these species to hasten their northern migration. Even during other springs, most of the warblers were seen only for a few days.

Other species not seen this spring were: Rose-breasted Grosbeak, Yellow-throated Vireo, Humming-bird, Least Flycatcher, Hairy Woodpecker, Snipe, Yellowlegs, Bittern, Sparrow Hawk.

Feb.	10, Brown Creeper;	Feb. 23,	Bluebird; Feb. 25, Robin
Mar.	9, Song Sparrow	Mar. 18,	Red-headed woodpecker
"	9, Meadowlark	" 18,	Snowbird
"	9, Purple Grackle	" 21,	Field Sparrow
"	9, Killdeer	" 22,	Golden-crownedKinglet
"	9, Red-winged Blackbird	" 22,	Kingfisher
"	10, Canada Goose	" 22,	Phoebe Bird
"	11, Herring Gull	" 24,	Mourning Dove
		" 30,	Chipping Sparrow
Apr.	1, Winter Wren	Apr. 23,	White-throated sparrow
"	5, Flicker	" 25,	Ruby-crowned Kinglet
"	6, Goldfinch	" 25,	Redstart
"	8, Fox Sparrow	" 26,	Barn Swallow
	8, Towhee	" 26,	Myrtle Warbler
"	9, Purple Finch	" 26,	Sandpiper
"	9, Vesper Sparrow	" 27,	Maryland Yellowthroat
"	11, Hermit Thrush	" 27,	Yellow Warbler
"	11, Yellow-billed sapsucker	" 29,	House Wren
	16, Brown Thrasher	" 30,	Warbling Vireo
"	17, Loggerhead Shrike	" 30,	Kingbird
"	17, Hell Diver	" 30,	Yellow Palm Warbler
May	1, Nighthawk	May 10,	Crested Flycatcher
"	2, Catbird	" 10,	Olive-backed Thrush
"	3, Baltimore Oriole	" 10,	Dickcissel
"	3, Chimney Swift	" 15,	Scarlet Tanager
"	7, Bobolink	" 17,	Red-eyed Vireo
"	7, Cardinal	" 17,	Indigo Bird
"	7, Purple Martin	" 20,	Yellow-billed Cuckoo
"	8, Orchard Oriole	" 28,	Alder Flycatcher
"	8, Whip-poor-will	" 31,	Cedarbird
"	10, Wood Pewee	June 18,	Bobwhite

Total number of migrants seen, 61.